

LIST OF CLAIMS

1. (Previously Presented) A process for producing compound semiconductor single crystal, comprising the steps of:

- a) placing a compound semiconductor raw material into a crucible;
- b) encapsulating the raw material;
- c) setting the crucible in a vertical type of a heating furnace to heat the raw material;
- d) melting the raw material;
- e) promoting a nucleation on a surface of a raw material melt by leaving a solid raw material in a part of the raw material melt;
- f) solidifying the raw material gradually from the surface of the raw material melt without a seed crystal;
- and
- g) growing a crystal by using a nucleus generated by the nucleation.

2. (Previously Presented) The process of claim 1, wherein the raw material is ZnTe or CdTe.

3. (Previously Presented) The process of claim 1, wherein  $B_2O_3$  is used to encapsulate the raw material.

4. (Previously Presented) The process of claim 1, wherein nucleation occurs on a top surface of raw material melt.

5. (Withdrawn) A single crystal produced by the process comprising the following steps:

- a) placing a compound semiconductor raw material into a crucible;
- b) encapsulating the raw material;
- c) setting the crucible in a vertical type of a heating furnace to heat the raw material;
- d) melting the raw material;
- e) promoting a nucleation on a surface of a raw material melt by leaving a solid raw material in a part of the raw material melt;
- f) solidifying the raw material gradually from the surface of the raw material melt without a seed crystal; and
- g) growing a crystal by using a nucleus generated by the nucleation.

6. (Withdrawn) The crystal of claim 5, wherein the raw material is ZnTe or CdTe.

7. (Withdrawn) The crystal of claim 5, wherein  $B_2O_3$  is used to encapsulate the raw material.

8. (Withdrawn) The crystal of claim 5, wherein nucleation occurs on a top surface of raw material melt.

9. (Withdrawn) The crystal of claim 5, wherein the crystal has a diameter of 70 mm and a total length of 50 mm.

10. (Withdrawn) The crystal of claim 5, wherein the crystal has no twin or polycrystal.

11. (Previously Presented) The process of claim 1, wherein nucleation occurs on a surface adjacent to the raw material melt.

12. (Withdrawn) The crystal of claim 5, wherein nucleation occurs on a surface adjacent to the raw material melt.

13. (New) The process of claim 1, wherein a temperature of the surface of the raw material melt is lower than a temperature of other part of the raw material in the promoting step.